Wings

The 20th annual Wings Over Houston air show welcomed Johnson Space Center Oct. 16 and 17. In addition to NASA aircraft, JSC also displayed the International Space Station Trailers, a replica of a Mars Exploration Rover and information about the Vision for Space Exploration.

NASA/Blair JSC2004E46033

NASA/Blair JSC2004E46027

Clockwise from left: The World War II demonstrations reenacted famous battles from the war with prop-driven aircraft from the round-engine era.

Two-year-old Cain Landry from Pearland, Texas, poses for a photo in the spacesuit.

Colin Perkins and Adaire Mullins of Ft. Pierce, Fla. take a close-up look at the displays inside the International Space Station Trailer.

The Fielding family and the Humphries family admire the Super Guppy.

NASA/Blair JSC2004E46022

NASA/Blair JSC2004E46025

Space Center Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Johnson Space Center, Houston, Texas, and is published by the Public Affairs Office for all Space Center employees. The Roundup office is in Bldg. 2, Rm. 166A. The mail code is AP121. Visit our Web site at: **www.jsc.nasa.gov/roundup/weekly/**
For distribution questions or to suggest a story idea, please call 281/244-6397 or send an e-mail to roundup@ems.jsc.nasa.gov.

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PRSRT STD
U.S. POSTAGE
PAID
WEBSTER, TX
Permit No. G27

Roundup

volume 43 number 11

SPACE CENTER ROUNDUP
Lyndon B. Johnson Space Center

NASA/Markowitz JSC2004E39619

Ain't no mountain high enough

Dean Eppler scales a hill at Johnson Space Center's EVA Remote Field Demonstration Test Site in preparation for a trip to a remote field testing site near Flagstaff, Ariz. The sand, grit, dust, rough terrain and extreme temperature swings of the desert simulate some of the conditions that may be encountered on the Moon or Mars. In September engineers and scientists led the Desert Research and Technology Studies (RATS) team from JSC and Glenn Research Center on a mission to evaluate prototype spacesuits, rovers and science gear.

For more on Desert RATS, see pages 6–7.

November 2004
Houston, Texas

Beak sends...

A MESSAGE FROM CENTER DIRECTOR
LT. GEN. JEFFERSON D. HOWELL JR.

Thanksgiving

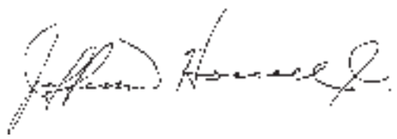
During this month of November, I hope that everyone has the opportunity to spend time with family and friends to celebrate all the wonderful blessings that we enjoy as citizens of this great nation.

I hope that you will also remember our Astronauts and Cosmonauts in space as well as the the brave men and women serving in our armed forces around the globe. Let us say a special prayer for those in harm's way as well as their families who suffer the trial of waiting and hoping for their safe return.

Please know how thankful I am to be on the JSC team and to be a part of this noble endeavor that we are about. Happy Thanksgiving!

It's great to be alive and in Houston!

Beak sends...



Guest column

Pioneers

In the span of five days, we lost two genuine pioneers of manned spaceflight. We should be in awe of their accomplishments chronicled on these pages. We should also pay attention to how they went about this business in their days, as each of their styles in approaching the unknowns of manned spaceflight couldn't have been more diverse. Gordon Cooper showed exuberant confidence in his readiness to take on this new world. Max Faget exuded thoughtful engineering excellence and innovation in solving problems in Cooper's new world. Both styles were needed then, and I suggest to you that both styles are still needed today. Continuing to fly the International Space Station safely, returning the Space Shuttle to flight and turning the Exploration vision into reality all require engineering excellence and innovation, complemented by exuberant confidence. And, as in Cooper's and Faget's days, the diversity of styles we share in this business and the mutual respect we must have for each other's talents will continue to be the foundation allowing us to continue their legacy.

Milt Heflin
Chief of the Flight Director Office

The KC-135 fades into the sunset

by Trisha Sims

NASA JSC2003E52421

NASA/Gongora 99E00854

Astronaut class number 17 on their Zero-G familiarization flight in the KC-135.

On Oct. 31, 2004, Ellington Field retired the well-known KC-135 aircraft, otherwise known as the "Vomit Comet," to old age. Future plans are to replace the KC-135 aircraft with a C-9, enabling NASA to continue its reduced-gravity program.

The KC-135 was first used by the U.S. Air Force as a refueling tanker. It was brought to NASA in 1973 to replace the C-135, which had been used to replicate a weightless environment.

Astronauts in training have been required to go up in the KC-135 at least one time every year since it was brought to Ellington Field 31 years ago. This specialized aircraft gives astronauts an idea of what microgravity feels like and also provides a test vehicle for new technology.

To simulate reduced gravity, the KC-135 aircraft climbs 8,000-plus feet over the Gulf of Mexico and then begins to freefall – a procedure known as a parabola. The pilot is allotted 24,000–37,000 feet over the ocean to perform 40–60 parabolas during a two-hour mission.

In 1996, NASA gave college students the opportunity to conduct microgravity experiments while onboard the KC-135, making it possible for more that 1,600 students to perform several different kinds of scientific investigations. John Yaniec, the lead test director for the Reduced Gravity Program, said he has enjoyed seeing the excitement on the students' faces while they conducted their experiments.

Comparing all of the different projects that he has seen as a flight director, Yaniec believes that "the Reduced Gravity Program helps pave the way for students and engineers to conduct cutting-edge research experiments that will someday become major contributions to the world of science and technology."

According to Yaniec, the experiments that made the biggest impression on him involved combustion and cool flames. "The KC-135 is the only platform that can provide certain gravities such as lunar, reduced gravity, Martian gravity and a sustained hypergravity."

This is where the plane gets the nickname the "Vomit Comet." Usually one out of every three passengers gets sick while onboard the plane. Yaniec, who has performed a total of 30,775 parabolas as of Oct. 1, is one passenger who has never gotten sick. "Our crew is aware of the importance of each passenger's safety while on the plane. We are willing to help take care of sick passengers," Yaniec said.

After several years of flying onboard as a test director, he has affectionately nicknamed the plane "Bertha." Well-known passengers that Yaniec remembers taking flight in the KC-135 are Journalist Hugh Downs and Dr. Simon Ostrach, who became the oldest person to fly on the aircraft at the age of 80.

When asked about his personal feelings on retiring the aircraft, Yaniec said that "the aircraft's frame is in good shape for having performed over 34,342 parabolas as of Oct. 1. However, it is becoming logistically hard to support the engine because it is currently the only Model KC-135A still flying."

The C-9 aircraft, which replaces the KC-135, will make its debut by the end of January or the beginning of February. The new plane has a smaller research area than the KC-135, but it will serve the same purpose by simulating microgravity for future scientists and current astronauts.